

$$UCL = \bar{x} + t_{.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean; s is the sample standard deviation; n is the number of samples; and  $t_{0.95}$  is the t statistic for a 95% two-tailed confidence interval with n-1 degrees of freedom (from Appendix A).

and

(ii) Any represented value of the energy efficiency or other measure of energy consumption of a basic model for

which consumers would favor higher values shall be less than or equal to the lower of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and,  $\bar{x}$  is the sample mean; n is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; Or,

(B) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.90, where:

$$LCL = \bar{x} - t_{.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean; s is the sample standard deviation; n is the number of samples; and  $t_{0.95}$  is the t statistic for a 95% two-tailed confidence interval with n-1 degrees of freedom (from Appendix A).

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to refrigerated bottled or canned beverage vending machine; and

(2) Pursuant to § 429.12(b)(13), a certification report shall include the following public product-specific information: The maximum average daily energy consumption in kilowatt hours per day (kWh/day), the refrigerated volume (V) in cubic feet (ft<sup>3</sup>) used to demonstrate compliance with standards set forth in § 431.296, the ambient temperature in degrees Fahrenheit

(°F), and the ambient relative humidity in percent (%) during the test.

[76 FR 12451, Mar. 7, 2011; 76 FR 24779, May 2, 2011, as amended at 76 FR 38292, June 30, 2011]

#### § 429.53 Walk-in coolers and walk-in freezers.

(a) *Determination of represented value—*(1) *Refrigeration equipment:* Manufacturers must determine the represented value, which includes the certified rating, for each basic model of walk-in cooler or freezer refrigeration equipment, either by testing, in conjunction with the applicable sampling

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provisions, or by applying an AEDM satisfying the criteria provided at § 429.70(f)(1).

(i) *Units to be tested.* (A) If the represented value for a given basic model is determined through testing, the general requirements of § 429.11 apply; and

(B) For each basic model selected for testing, a sample of sufficient size shall

be randomly selected and tested to ensure that—

(1) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and,  $\bar{x}$  is the sample mean; n is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; or,

(ii) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean; s is the sample standard deviation; n is the number of samples; and  $t_{0.95}$  is the t statistic for a 95% one-tailed confidence interval with n–1 degrees of freedom (from Appendix A to subpart B). And,

(2) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

And,  $\bar{x}$  is the sample mean; n is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; or,

(ii) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean; s is the sample standard deviation; n is the number of samples; and  $t_{0.95}$  is the t statistic for a 95% one-tailed con-

fidence interval with n–1 degrees of freedom (from Appendix A to subpart B).

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(ii) *Alternative efficiency determination methods.* In lieu of testing, a represented value of efficiency or consumption for a basic model of a walk-in cooler or freezer refrigeration system must be determined through the application of an AEDM pursuant to the requirements of § 429.70 and the provisions of this section, where:

(A) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the output of the AEDM and less than or equal to the Federal standard for that basic model; and

(B) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the output of the AEDM and greater than or equal to the Federal standard for that basic model.

(iii) If the represented value of a refrigeration system was determined using the unit cooler testing provisions at 10 CFR 431.304(c)(12), that represented value may be used for all refrigeration systems containing that

unit cooler irrespective of whether such equipment is sold separately or as part of a matched refrigeration system. However, for any representations of matched-system efficiency that exceed the refrigeration system rating as determined by the unit cooler testing provisions at 10 CFR 431.304(c)(12) and for which a manufacturer wishes to make representations of the more-efficient rating, then the matched refrigeration system must be tested separately in accordance with the DOE test procedure for matched systems and applicable sampling plan.

(2) *WICF components other than those specified in (a)(1) of this section—*(i) *Units to be tested.*

(A) The general requirements of § 429.11 apply; and

(B) For each basic model selected for testing, a sample of sufficient size shall be randomly selected and tested to ensure that—

(1) Any represented value of energy consumption or other measure of energy use of a basic model for which consumers would favor lower values shall be greater than or equal to the higher of:

(i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and,  $\bar{x}$  is the sample mean;  $n$  is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; or,

(ii) The upper 95 percent confidence limit (UCL) of the true mean divided by 1.05, where:

$$UCL = \bar{x} + t_{0.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean;  $s$  is the sample standard deviation;  $n$  is the number of samples; and  $t_{0.95}$  is the  $t$  statistic for a 95% one-tailed confidence interval with  $n-1$  degrees of freedom (from Appendix A to subpart B). And,

(2) Any represented value of energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

(i) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

And,  $\bar{x}$  is the sample mean;  $n$  is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample; or,

(ii) The lower 95 percent confidence limit (LCL) of the true mean divided by 0.95, where:

$$LCL = \bar{x} - t_{0.95} \left( \frac{s}{\sqrt{n}} \right)$$

And  $\bar{x}$  is the sample mean;  $s$  is the sample standard deviation;  $n$  is the number of samples; and  $t_{0.95}$  is the  $t$  statistic for a 95% one-tailed confidence interval with  $n-1$  degrees of freedom (from Appendix A to subpart B).

(b) *Certification reports.* (1) The requirements of § 429.12 are applicable to manufacturers of the components of walk-in coolers and freezers (WICFs) listed in paragraph (b)(2) of this section, and;

(2) Pursuant to § 429.12(b)(13), a certification report shall include the following public product-specific information:

(i) For WICF doors: The door type, R-value of the door insulation, and a declaration that the manufacturer has incorporated the applicable design requirements. In addition, for those WICFs with transparent reach-in doors and windows: The glass type of the doors and windows (e.g., double-pane with heat reflective treatment, triple-pane glass with gas fill), and the power draw of the antisweat heater in watts per square foot of door opening.

(ii) For WICF panels: The R-value of the insulation (except for glazed portions of the doors or structural members).

(iii) For WICF refrigeration systems: The motor's purpose (i.e., evaporator fan motor or condenser fan motor), the horsepower, and a declaration that the manufacturer has incorporated the applicable design requirements.

[79 FR 27409, May 13, 2014]

**§ 429.54 Metal halide lamp ballasts and fixtures.**

(a) *Sampling plan for selection of units for testing.* (1) The requirements of § 429.11 are applicable to metal halide lamp ballasts; and

(2) For each basic model of metal halide lamp ballast selected for testing, a sample of sufficient size, not less than four, shall be selected at random and tested to ensure that:

(i) Any represented value of estimated energy efficiency calculated as the measured output power to the lamp divided by the measured input power to the ballast ( $P_{\text{out}}/P_{\text{in}}$ ), of a basic model is less than or equal to the lower of:

(A) The mean of the sample, where:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

and,  $\bar{x}$  is the sample mean;  $n$  is the number of samples; and  $x_i$  is the  $i^{\text{th}}$  sample;